Using GIS to Assist State Police in Manhunt

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Background

- Mid-March - Individual goes missing and suspects are identified
- March 21, 2004 - Van Buren County Sheriff's Office, Arkansas State Police (ASP), Arkansas Game and Fish Law Enforcement, FBI, and ATF respond to Alread, Arkansas

Background (continued)

- March 22, 2004 - Shots are fired and an ASP officer is hit as law enforcement approach the suspects' property.
  - For the next 2 to 3 hours, law enforcement and medical personnel worked to secure the area and locate the downed officer.

- March 24, 2004 - Arkansas Geographic Information Office (AGIO) staff were requested in Alread to provide technical support in the way of maps.

GIS / Maps

- This was the first time GIS had been used in this type of scenario in Arkansas.

- AGIO Questions:
  - Can GIS truly support this type of law enforcement need?
    - Geospatial data availability
    - Hardware/software availability

- Law Enforcement Questions
  - Where are we relative to…
    - Victims' house?
    - Suspects' house?
    - Incident events?
  - How many residents are in this area?
  - Where are our field teams?

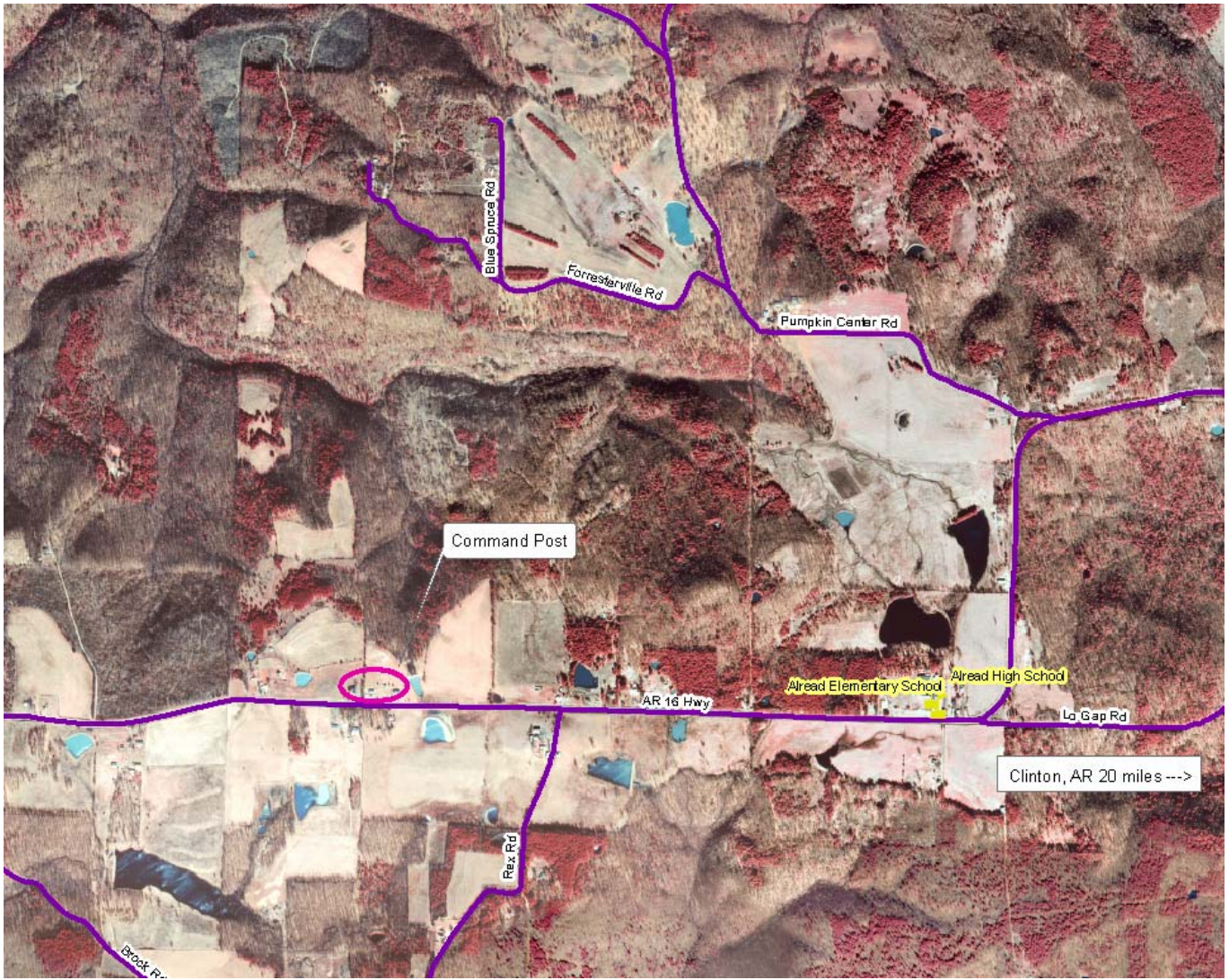
GIS System Used

- Hardware - 2 Laptops, a 21 inch monitor, portable printer, portable hard-drive, and projector
- Software – Enterprise GIS, Adobe PDF read /writer, Microsoft Office
- Geospatial Data - County Assessor Mapping Data and CAMA database (extracted that morning), Arkansas Centerline File (roads), Hillshade Digital Raster Graphics, Digital Orthos, and K-12 Public Schools,

  Visit www.gis.state.ar.us to learn more about CAMP & ACF
- Staff - one trained GIS software user

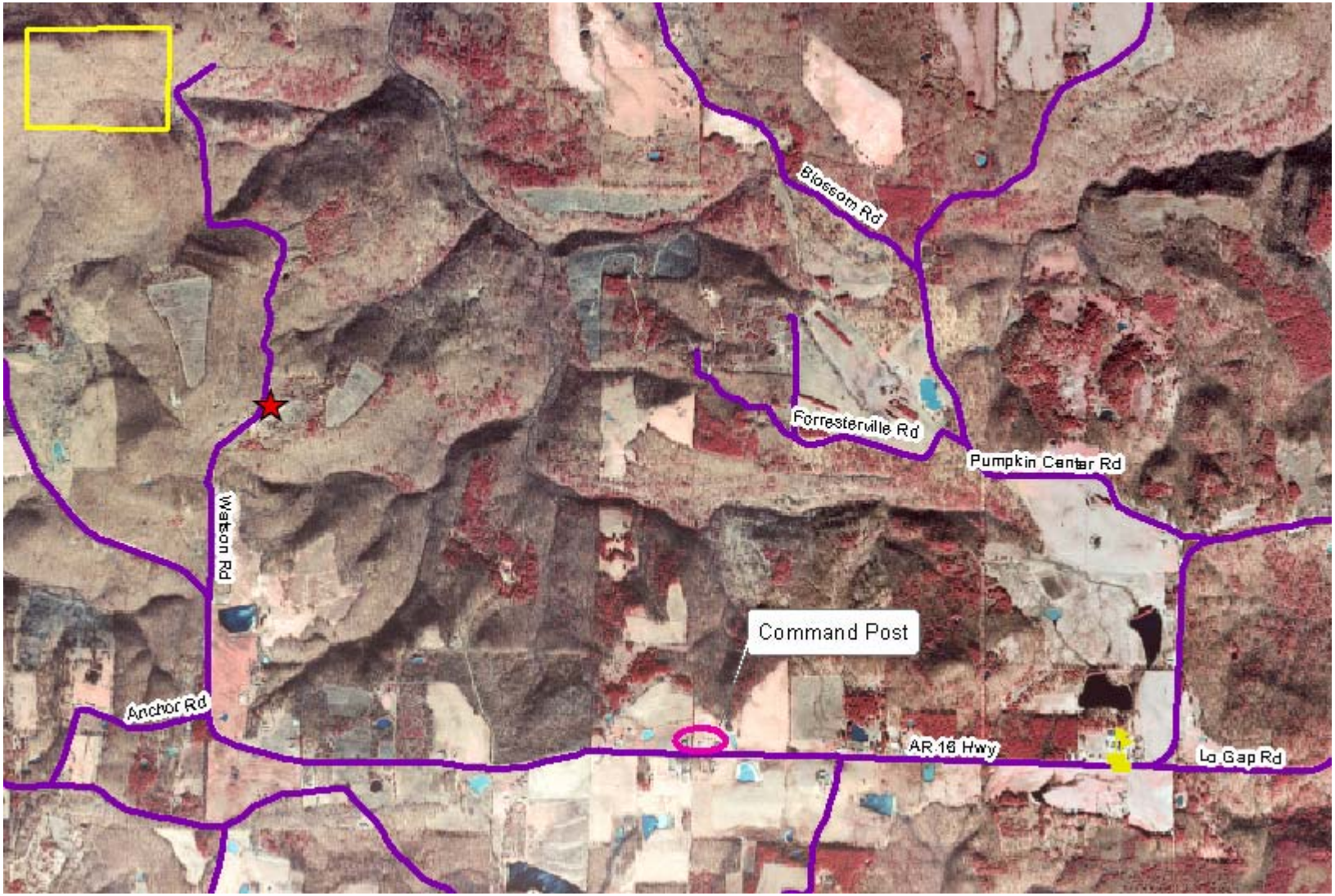
Law Enforcement Questions

- State and Federal law enforcement responded from around the state.
  - A common question was where are we relative to…



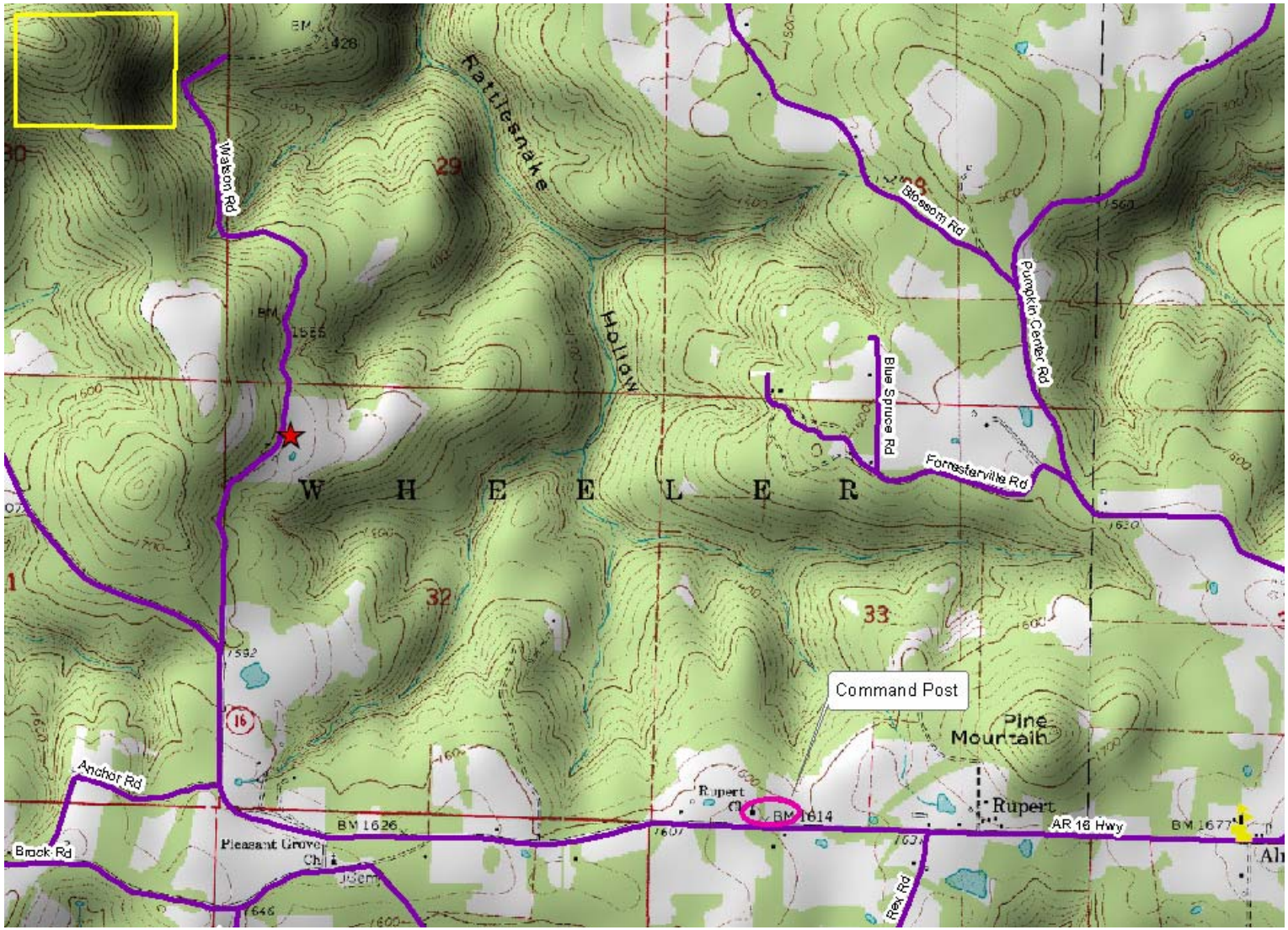
Victim and Suspects' Residence

- ACF, CAMP, and CAMA databases were used to locate and verify the victim and suspects' residence



Victim and Suspects' Residence

- Hillshade Digital Raster Graphics (Topos) were used to assess the topographic relief in the area.

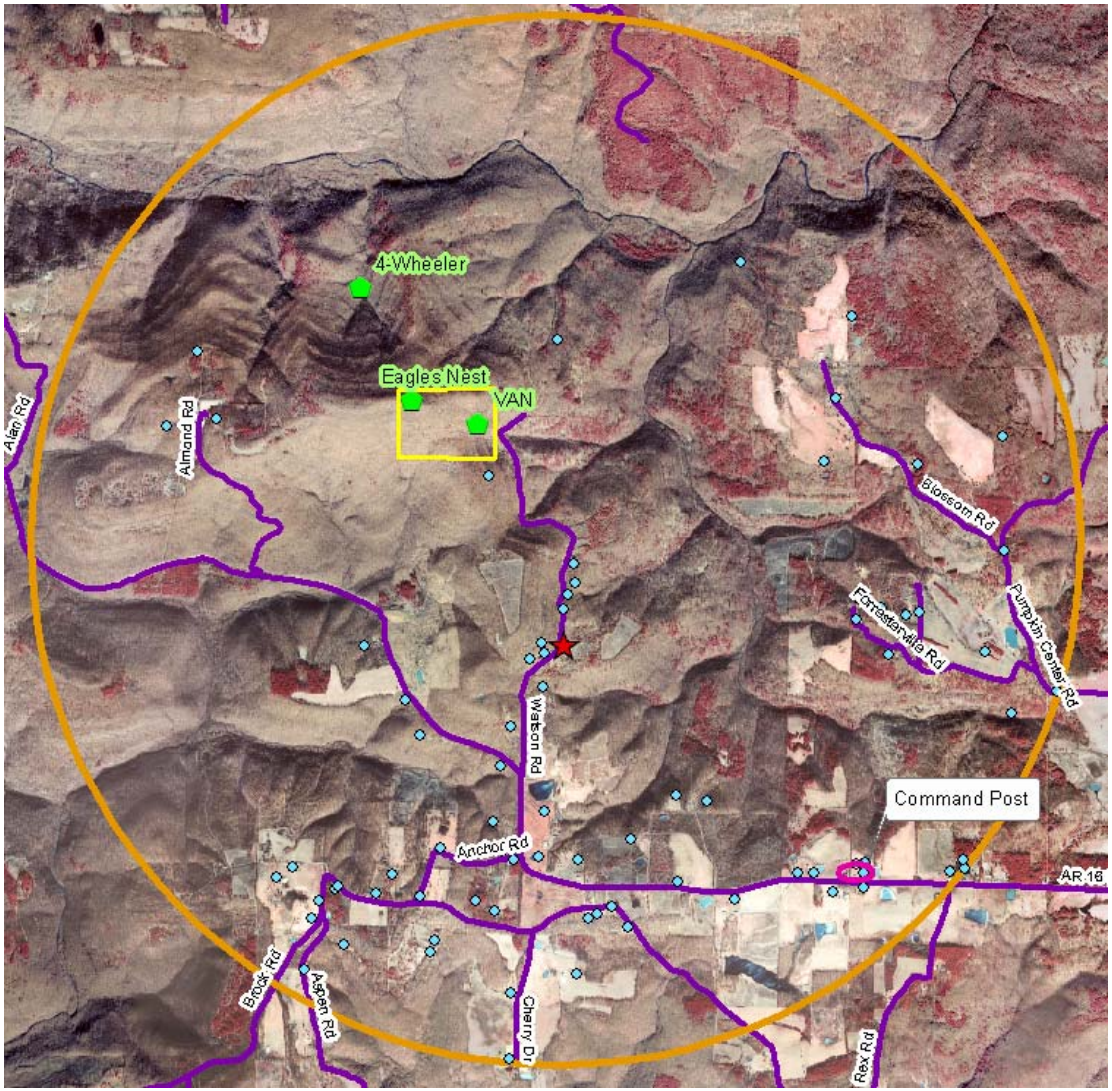


Law Enforcement GPS Points

- Law enforcement provided coordinates of 'events of interest' to AGIO staff

2-Mile Buffer

- CAMP and CAMA information were used to locate residents within two miles of the victims' address.

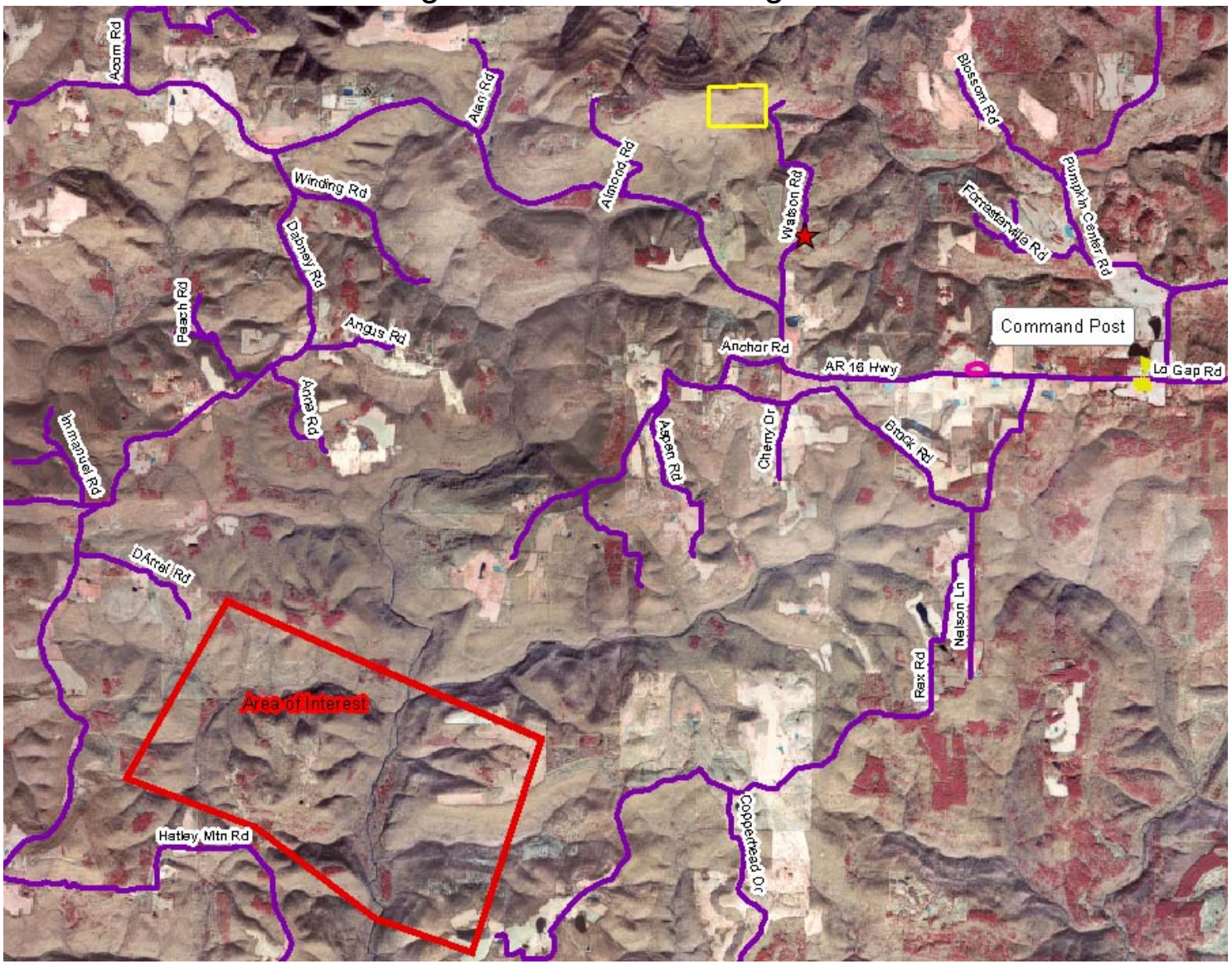


Addresses within 2-mile Buffer

- CAMP and CAMA information were used to provide addresses within two miles of the victims' address.

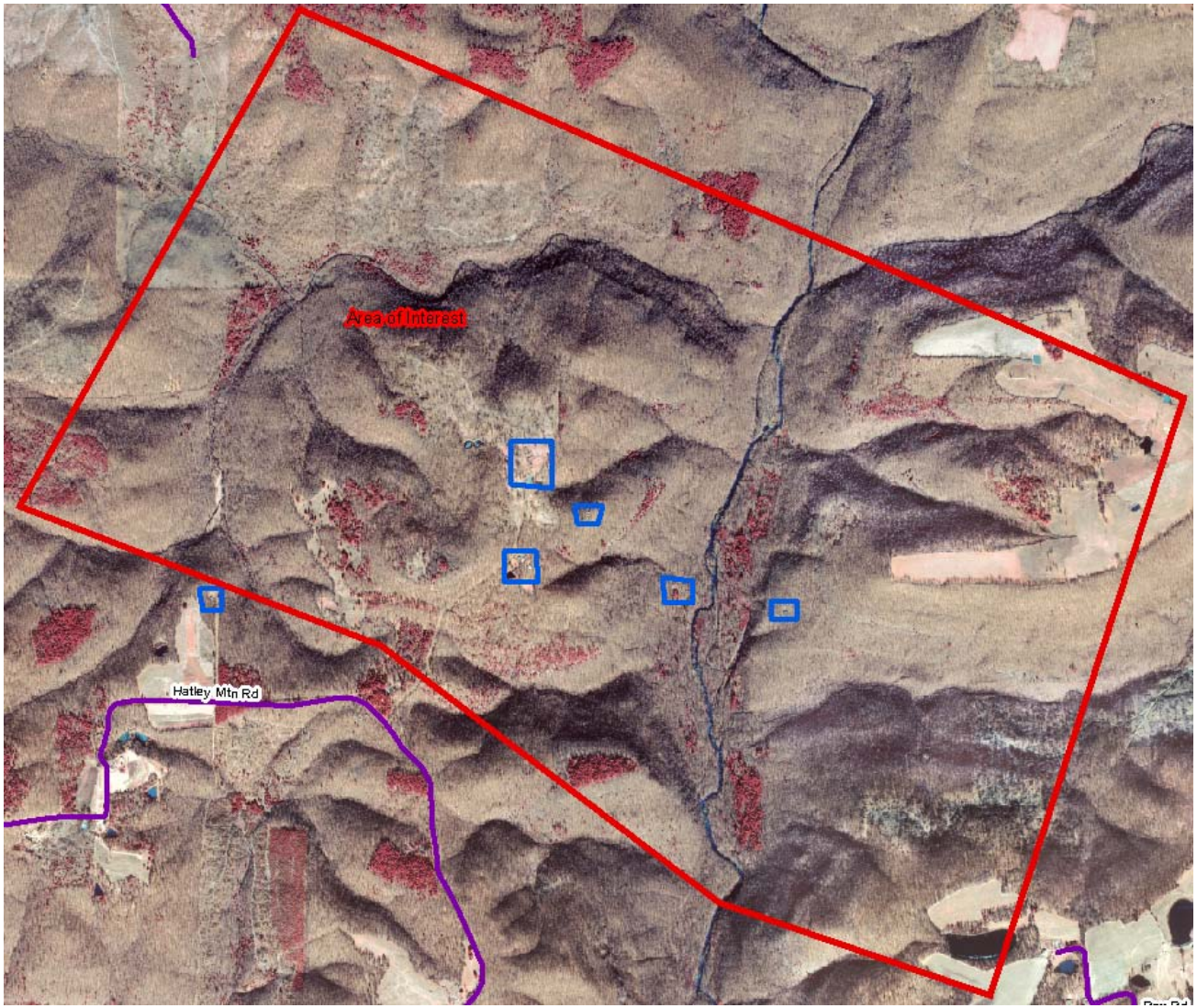
Area of Interest 1

- A call was received that gave reason to investigate another area of interest.



Area of Interest 1

- AGIO and law enforcement staff examined the digital orthos in search of structures.

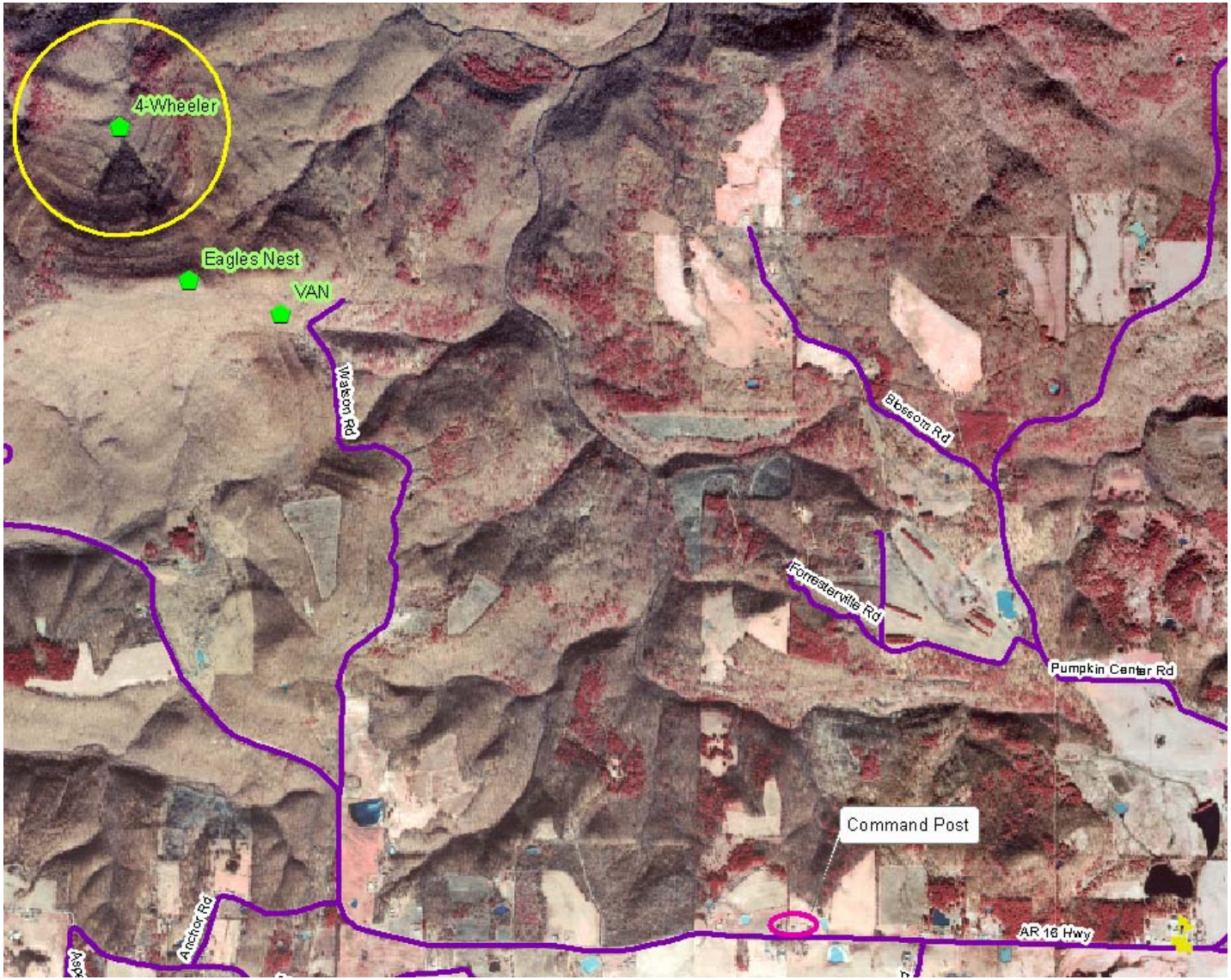


Area of Interest 1

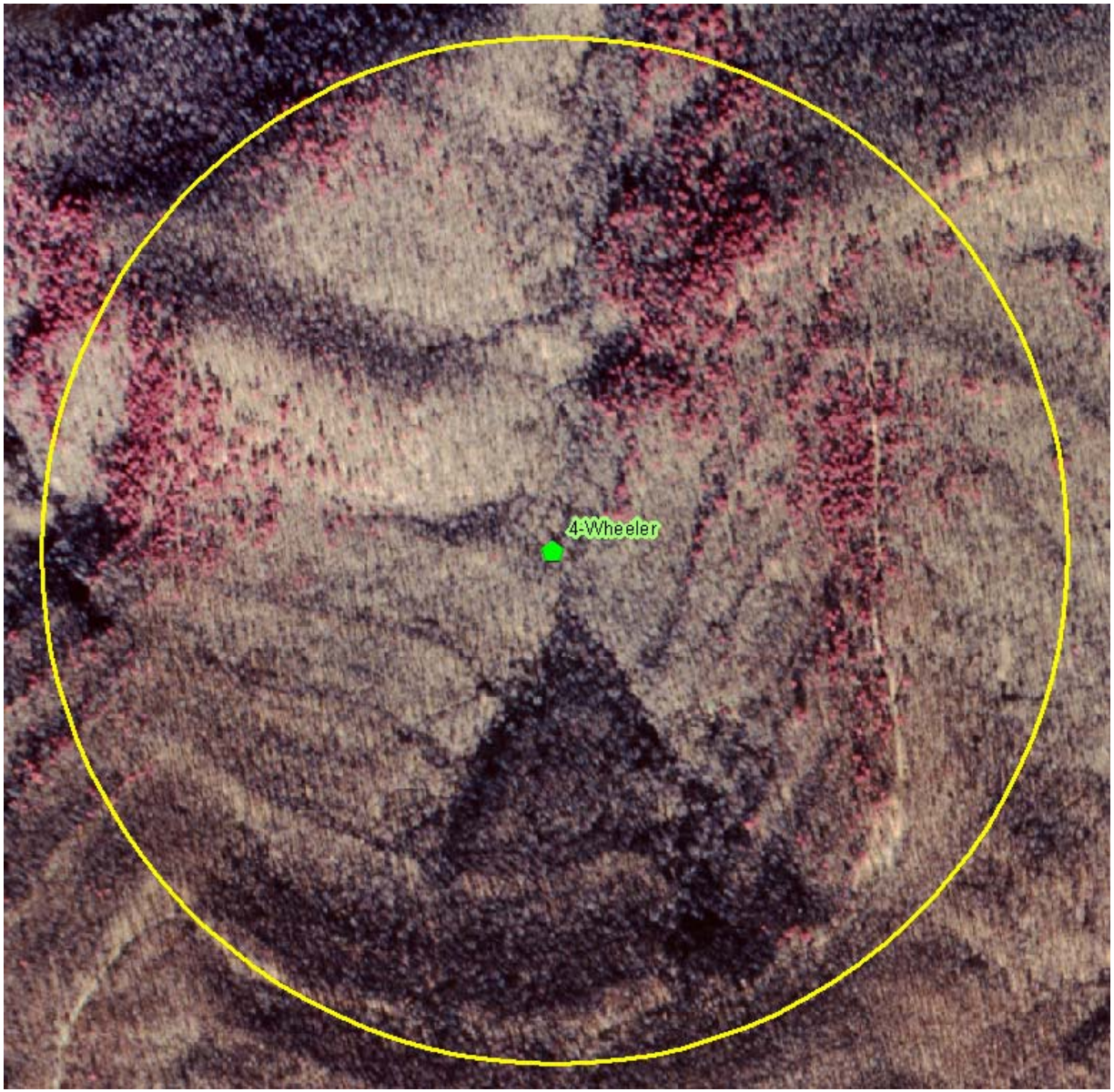
- Blue boxes were used to indicate structures located.

Area of Interest 2

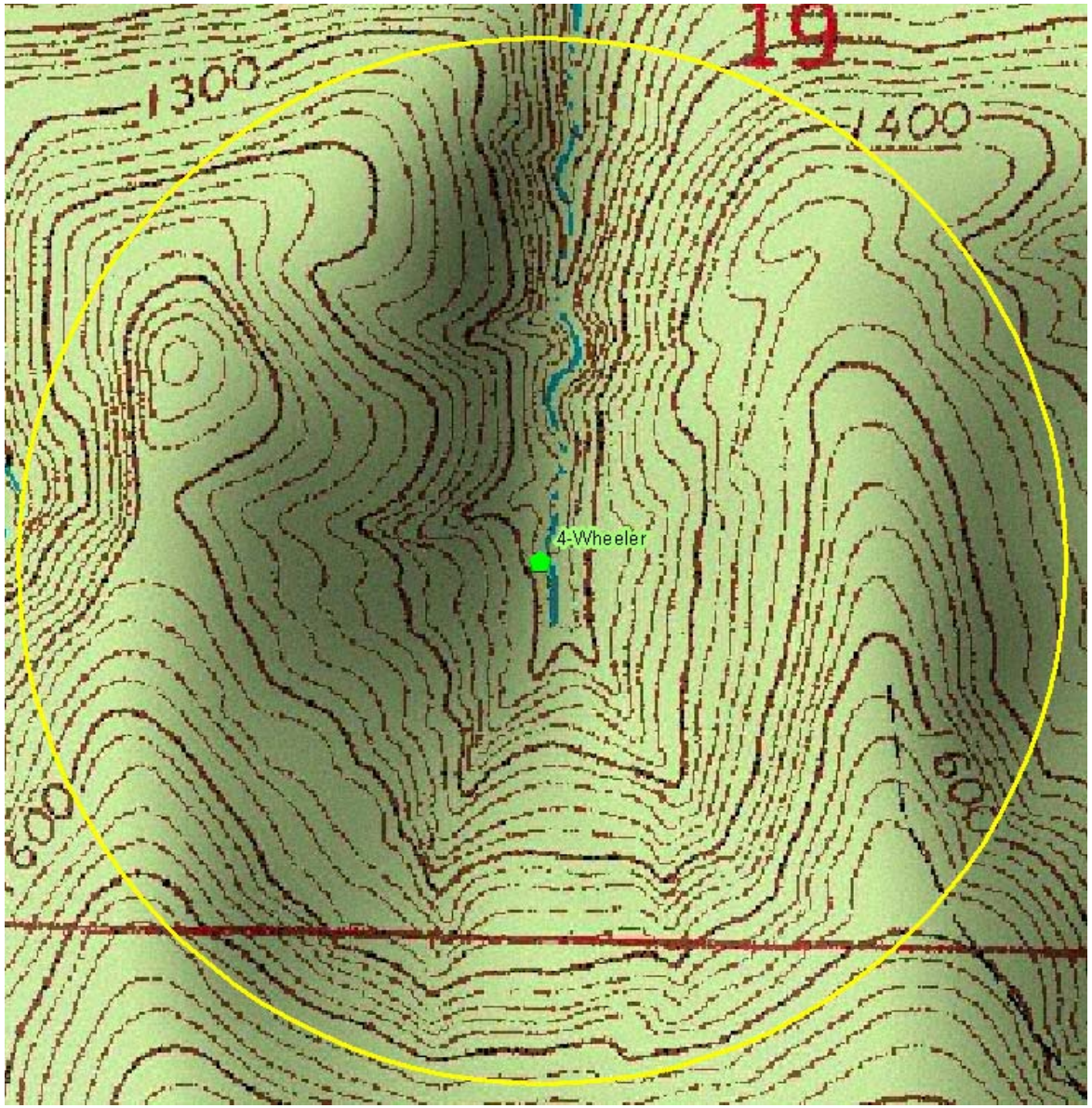
- .3 of a mile from a four wheeler that was located.



Area of Interest 2



Area of Interest 2



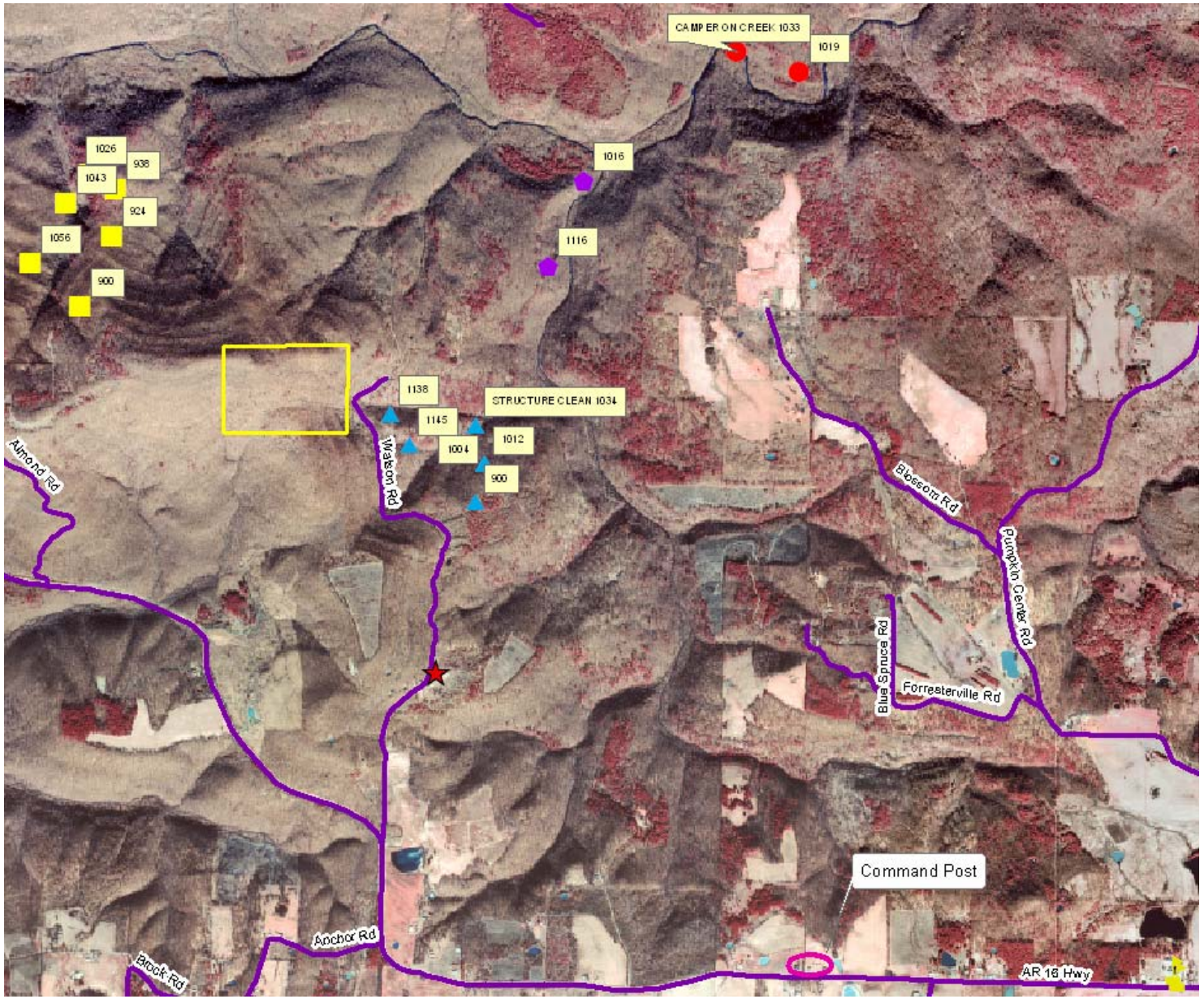
Tracking Field Teams

This part of Van Buren County is extremely remote and consists of extreme topographic relief.

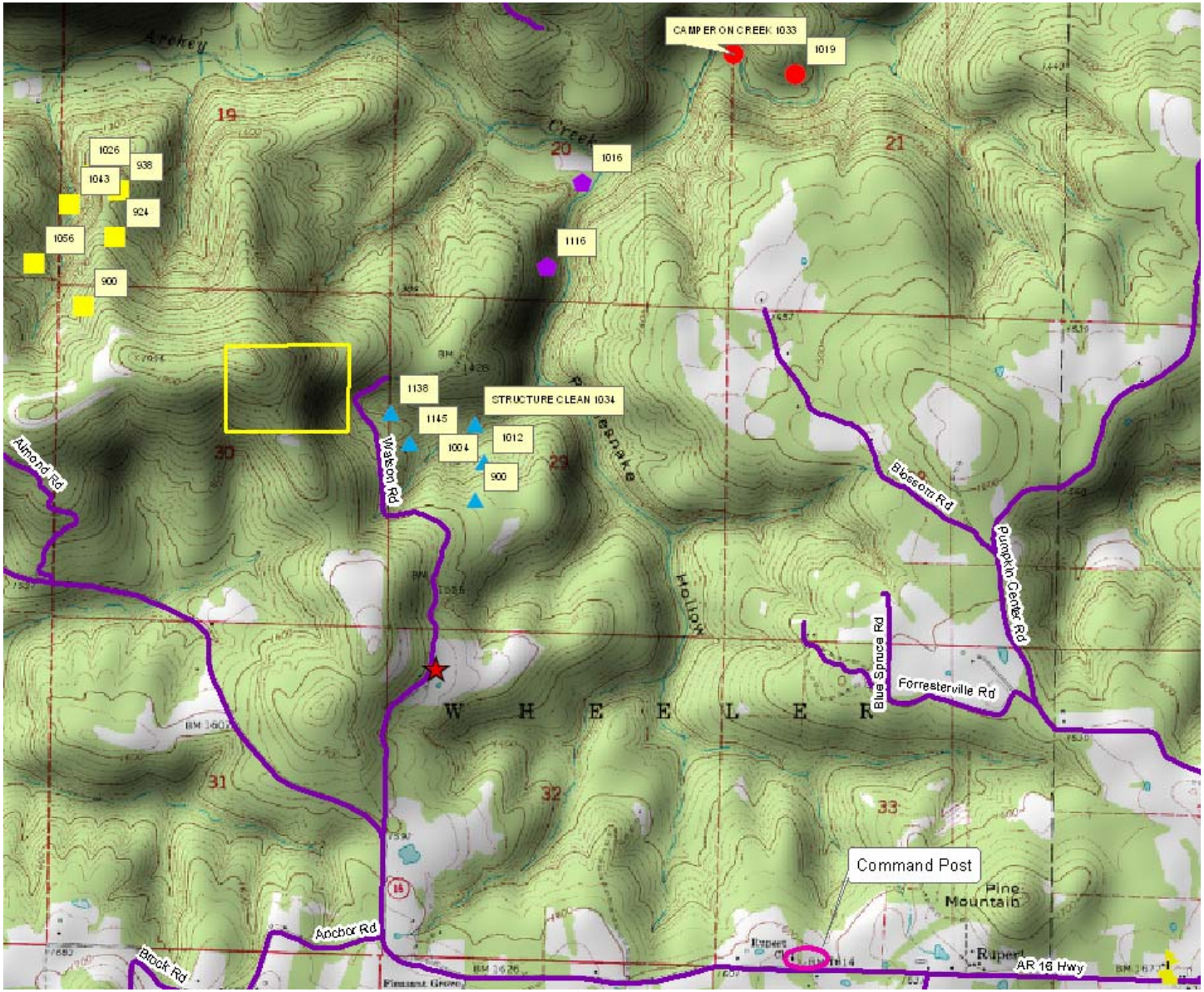
- Each field team was supplied a GPS unit. Field teams called in their coordinates and AGIO staff placed the coordinates, time, and events on a display viewed by the incident commander.

- Tracking field teams enabled the incident commander to keep track of where field teams were located in relation to all of the other teams and events.

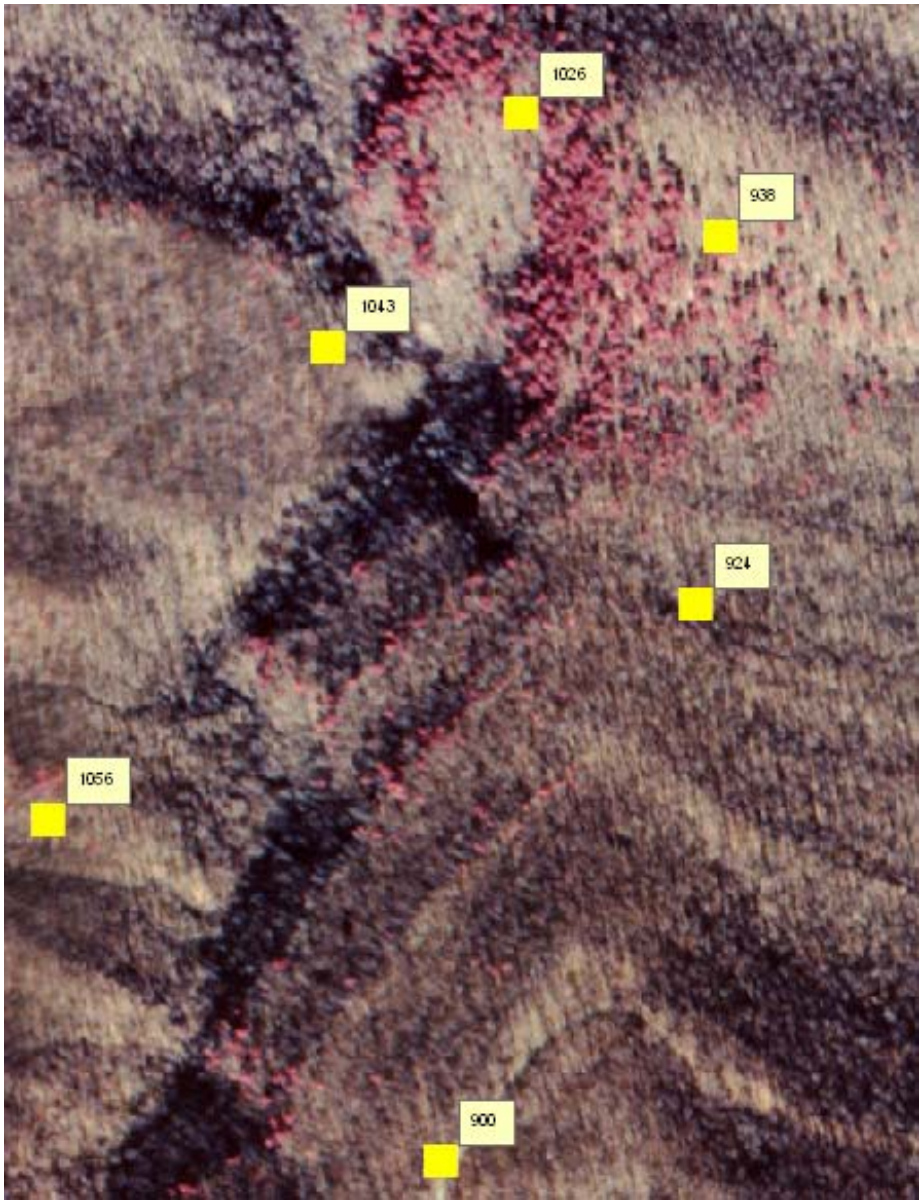
Tracking Field Teams



Tracking Field Teams



Tracking Field Team 1



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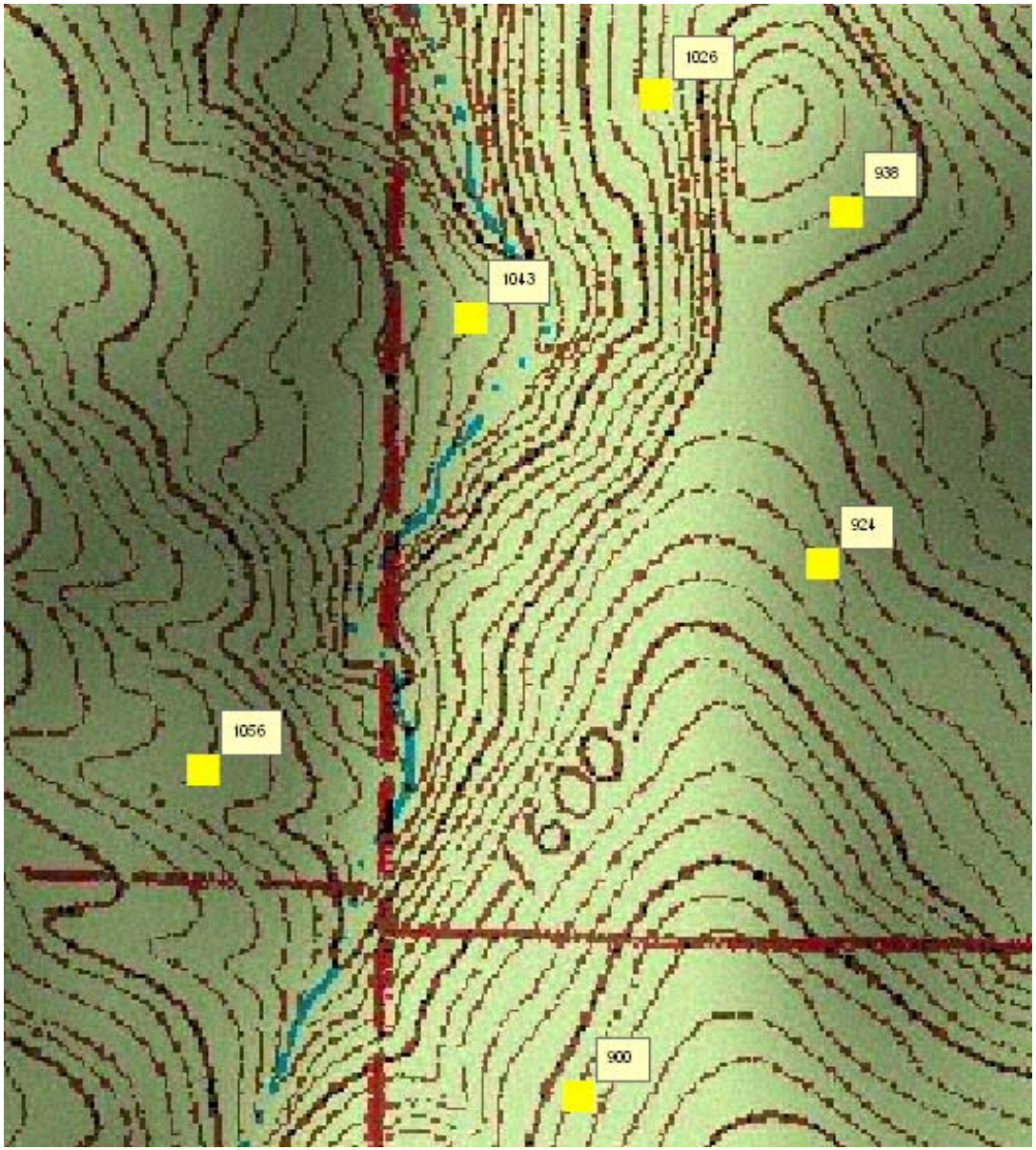
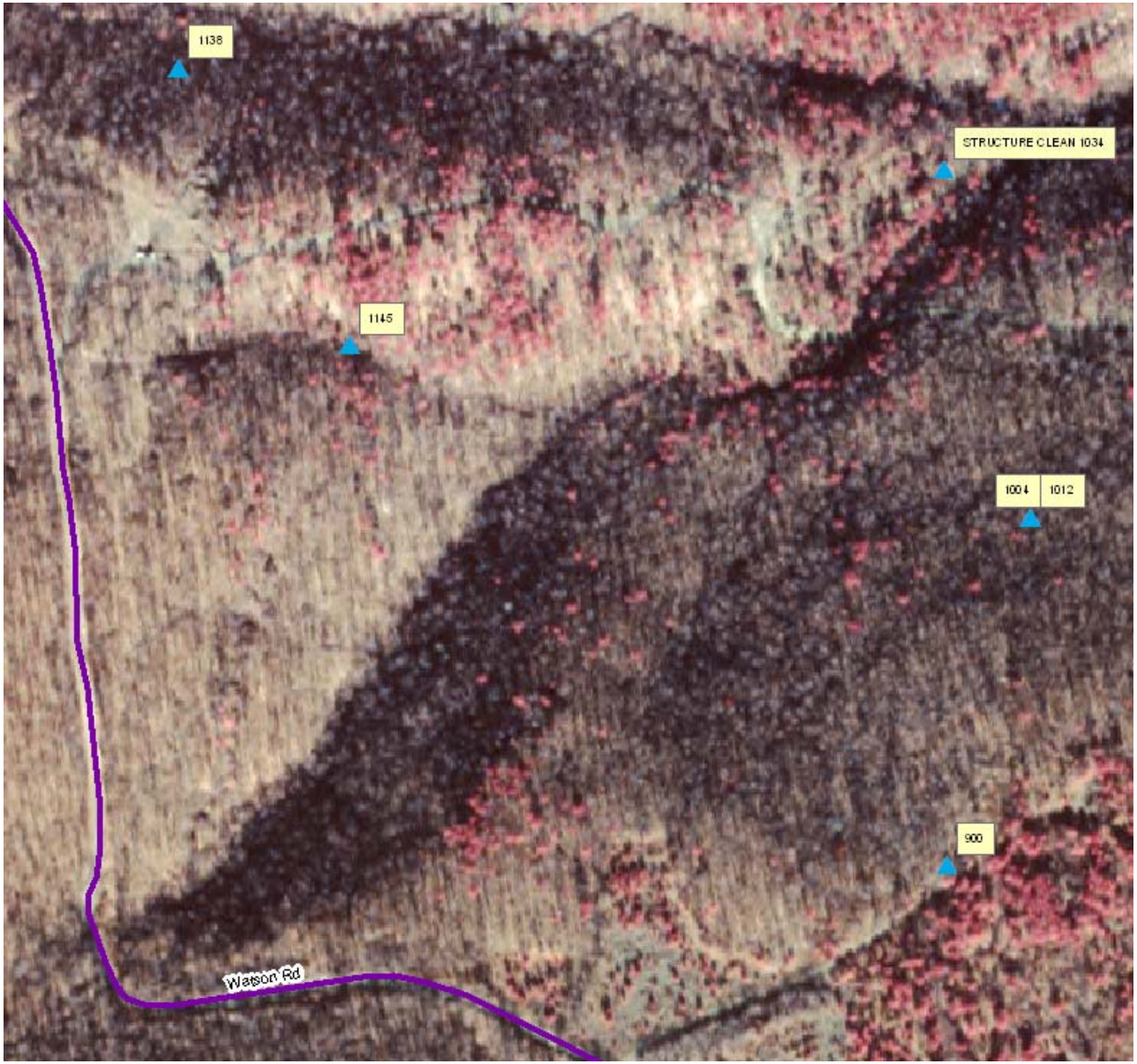
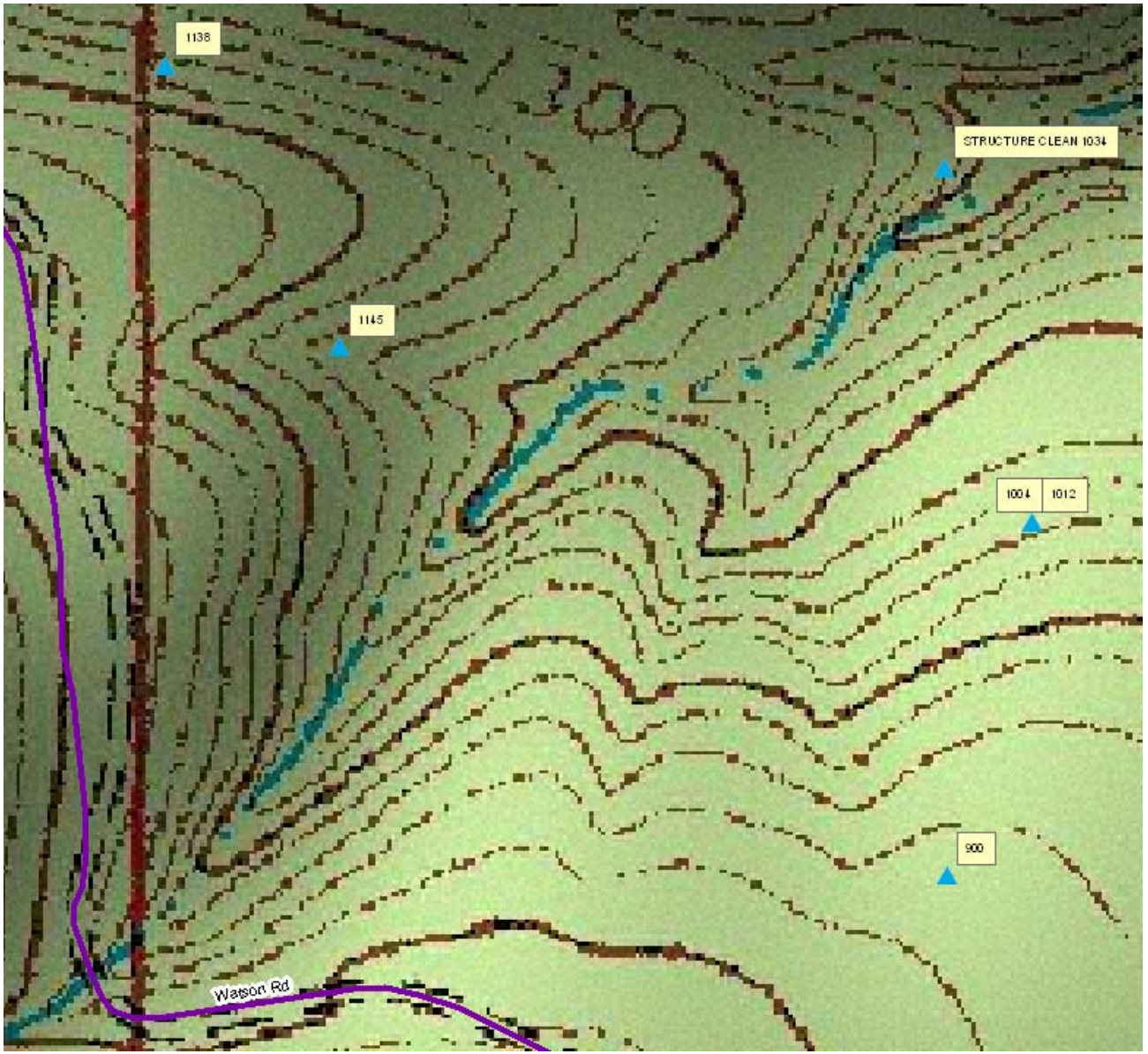


Tracking Field Team 2



Tracking Field Team 2



Quotes

- “These maps could have assisted us in locating and evacuating the downed officer in a more efficient manner” *--Field Operations Captain*

- “Being able to capture coordinates and then show the incident commander where an area of interest is relative to everything else is critical” *--Chopper Pilot*

- “Having the ability to show assisting agencies an overview of the area and where events have taken place is invaluable” *--Incident Responder*

Conclusions

- One can not assume high internet bandwidth availability
- Responding to law enforcement events such as a manhunt requires a complete GIS system (i.e., hardware, software, geospatial data, and trained GIS professionals).
- The best geospatial data is created at the local level
- Updated and maintained geospatial data is critical
- GIS can assist law enforcement and potentially save lives.

Credits

Special thanks to all those who contributed their geospatial data.

- David Britton, Van Buren County E-911 Coordinator
  - Van Buren County Centerlines (ACF data)
- Trina Jones, Van Buren County Assessor Mapping
  - Van Buren County Parcel Mapping (CAMP data)
- Dr. Bob Weih, Director, Spatial Analysis Lab, UA Monticello
  - Hillshade Digital Raster Graphics
- Arkansas Department of Education
  - K-12 Public Schools
- Arkansas State Land Information Board
  - Digital Ortho Quarter Quadrangles

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